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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,286	04/21/2004	Hirotaaka Nakagawa	501.43788X00	6379
24956	7590	11/16/2006	EXAMINER	
MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C. 1800 DIAGONAL ROAD SUITE 370 ALEXANDRIA, VA 22314			PATEL, KAUSHIKKUMAR M	
			ART UNIT	PAPER NUMBER
			2188	

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/828,286	Applicant(s) NAKAGAWA ET AL.	
	Examiner Kaushikkumar Patel	Art Unit 2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4, 6, 10, 14, 15 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4, 6, 10, 14, 15 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 5, 2006 has been entered.

Response to Amendment

2. This office action is in response to applicant's communication filed September 5, 2006 in response to PTO office action mailed April 5, 2006. The applicant's remarks and amendments to the claims were considered with the results that follow.

3. In response to the last office action, claims 4, 6, 10, 14-15 and 17 have been amended. No claims have been added. Claims 1-3, 5, 7-9, 11-13, 16 and 18-20 have been previously canceled. As a result, claims 4, 6, 10, 14-15 and 17 remain pending in this application.

Response to Arguments

4. With respect to rejection of claims under 35 U.S.C. 112, second paragraph, applicant argues that the claims rejected under 35 U.S.C. 112, second paragraph were canceled rendering the rejection moot, but the subject matter (language) of canceled

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claims were added to the dependent claim and hence the dependent claim inherited the informalities of the claims and as such the claims remained rejected under 35 U.S.C. 112, second paragraph and reiterated below for applicant's convenience.

Claim Objections

5. Claims 4, 6, 10, 14-15 and 17 is objected to because of the following informalities:

As per claims 4, 6 and 10 the limitation "comparing the referenced characteristic information among the plurality of storage system against each other" should be "comparing the referenced characteristic information among the plurality of storage system".

As per claims 10 and 14-15, the limitation "comparing the storage system characteristics corresponding to the obtained level" should be "comparing the storage system characteristics corresponding to respective obtained levels of the first storage system and the second storage system".

As per claims 14 and 15, the limitation "wherein the comparison of the storage system characteristics is...based on the mapping information, and;" should be "wherein the comparison of...the second storage system, and;".

Claim 17 recites limitation "the other storage system" in lines 9, 11, 13 and 15. The limitation was defined as "another storage system" in line 3. Applicant is advised to change the limitation "the other storage" to "the another storage" or vice-a-versa to maintain the consistency of the claim language.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

7. Claims 4, 6, 10, 14-15 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitations "a storage system", "the volume" and "the storage system" in lines 8 and 16. It is unclear "a storage system" in line 8 refers to "a plurality of storage system" recited in lines 2 and 3 or a different one and "the volume" refers to "volumes" of lines 1, 3 or "each volume" of line 7. There is insufficient antecedent basis for these limitations in the claim.

Claim 6 recites the limitation "the other storage system" in lines 15 and 17. There is insufficient antecedent basis for this limitation in the claim.

Claims 6, 14-15 and 17 also contains similar informalities in the claims language and hence rejected under same rationales as above.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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9. Claims 4 and 10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As in claims 4 and 10, there is no useful, concrete and tangible result. The claims focus on individual steps and/or structure in defining the invention. The claims perform the individual steps of obtaining and comparing information but no concrete steps are taken based on the results. A useful, concrete and tangible result must be either specifically recited in the claims or flow inherently therefrom.

Examiner recommends including limitation in claims 4 and 10, similar to "allocating a volume" or "storing a data based on comparison" as disclosed in claims 6 or 14, in order to specifically recite a useful, concrete and tangible results.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claim 4 is provisionally rejected on the ground of nonstatutory double patenting over claims 2, 3 and 5 of copending Application No. 11/480,394. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:

Claim 4 is compared to claims 2, 3 and 5 of application 11/480,394 in following table:

Instant Application	Application 11/480,394
(Claim 4) A method of managing volumes of a plurality of storage systems, by a management computer via a first network to the plurality of storage systems having	(Claim 2) A method of managing volumes of a plurality of storage systems, by a management computer connected via a first network to the plurality of

<p>volumes connected to a computer via a second network and storing data used by the computer, the method comprising the steps of:</p> <p>keeping a correspondence between each value of a level and characteristics information related to characteristics of each volume to be provided by a storage system including the volume,</p>	<p>storage systems having volumes connected to a computer via a second network and storing data used by the computer, the method comprising the steps of:</p> <p>keeping a correspondence between a plurality of levels and characteristics information of each of the storage systems,</p> <p>wherein said levels are represented by values, each indicating a desirable performance of a volume with respect to a particular characteristic, as represented by characteristic information, of a storage system in which the volume can be created,</p> <p>wherein a high value indicates a high desire for the corresponding characteristic relative to a low value which indicates a low desire for the corresponding characteristics;</p>
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obtaining from a first storage system, a first value of a level indicating characteristic information of a first volume having been provided to the computer by the first storage system; and referencing the characteristics information corresponding to the first value among the plurality of storage systems; and comparing the referenced characteristic information among the plurality of storage systems against each other,

wherein the correspondence is obtained from the storage system connected to the management computer, and wherein the comparison of the characteristic information of respective volume is also performed when a new correspondence is obtained from the first

obtaining from a first storage system a first value of a level corresponding to characteristic information of a first volume having been provided to the computer by the first storage system; and referencing characteristics information corresponding to the first value among the plurality of storage systems; and comparing the referenced characteristic information among the plurality of storage systems to the characteristic information corresponding to the first value to determine a storage system which can provide better performance than the first storage system,

(Claim 3) wherein the correspondence is obtained from the storage system connected to the management computer, (Claim 5) wherein the comparison of the characteristic information of respective volume is also performed when a new correspondence is obtained from the first

storage system.	storage system.
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12. Claims 6, 10 and 17 are provisionally rejected on the ground of nonstatutory double patenting over claims 6-7 and 11-12 of copending Application No. 11/480,394 respectively. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

13. Claims 14 and 15 are compared to claim 10 of application 11/480,394 in following table:

Instant Application	Application 11/480,394
(Claim 14) A method of managing volume of a first storage system connected to a computer via a first network, and a volume of a second storage system connected to the first storage system, by a management computer connected to the first storage system and the second storage system via a second network, the method comprising the steps of: keeping a correspondence between a level indicating a specific performance of each volume and storage system	(Claim 10) A method of managing volumes of a plurality of storage systems, by a management computer connected via a first network to the plurality of storage systems having volumes connected to a computer via a second network and storing data used by the computer, the method comprising the steps of: keeping a correspondence between a plurality of levels and characteristics information of each of the storage

<p>characteristics indicating a performance of a storage system including the volume, for each of the storage systems;</p> <p>obtaining a level indicating a specific performance of a volume of the first storage system, and a level indicating a specific performance of a volume of the second storage system connected to the volume of the first storage system;</p> <p>comparing the storage system</p>	<p>systems,</p> <p>wherein said levels are represented by values, each indicating a desirable performance of a volume with respect to a particular characteristic, as represented by characteristic information, of a storage system in which the volume can be created,</p> <p>wherein a high value indicates a high desire for the corresponding characteristic relative to a low value which indicates a low desire for the corresponding characteristics;</p> <p>obtaining from a first storage system a first value of a level corresponding to characteristic information of a first volume having been provided to the computer by the first storage system; and</p> <p>referencing storage system</p>
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<p>characteristics corresponding to the obtained level;</p> <p>when the results of the comparison indicate that the storage system characteristics of the first storage system corresponding to the level indicating the specific performance of the volume of the second storage system is better than the storage system characteristics of the second storage system, storing the data into the volume having a specific performance, based on the storage system characteristics of the first storage system corresponding to the level of the first storage system.</p>	<p>characteristics of the first storage systems; and</p> <p>comparing the performances of the volumes of the respective storage systems to the characteristic information corresponding to the first value to determine a storage system which can provide better performance than the first storage system, and</p> <p>wherein the management computer receives an input giving an instruction to allocate to the computer the volume having storage system characteristics of the other storage system corresponding to the obtained level, and instructs the allocation;</p> <p>copying data stored in a volume of the first storage system into a volume allocated to the computer in response to the instructing;</p>
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Claim 10 of application 11/480394 fails to teach "wherein the comparison of the storage system characteristics is performed by obtaining mapping information indicating that the volume of the first storage system is connected to the volume of the second storage system". It is well known in the art that in case of virtualized storage systems, the volumes can be added and removed by changing mapping information and also the same mapping information can be used to identify the connected storage volumes to the host devices. Thus, it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize mapping information to identify connected volumes of the storage systems.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaushikkumar Patel whose telephone number is 571-272-5536. The examiner can normally be reached on 8.00 am - 4.30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung Sough can be reached on 571-272-6799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


kmp

Kaushikkumar Patel
Examiner
Art Unit 2188


HYUNG SOUGH
SUPERVISORY PATE

11/13/06